AMENDMENTS TO THE SPECIFICATION

<u>On Page 1,</u>

Please replace the paragraph beginning on line 8 with the following amended paragraph:

A radio signal from a transmitter to a receiver will travel along different propagation paths as the signal is scattered by obstacles, such as houses and other objects. This leads to signals received with different time delays, the so called multipath propagation. When the receiver starts moving, Doppler shifts will be introduced. When several paths arrive at the same time delay a Doppler spread, or Doppler spectrum, is generated.

<u>On Page 5,</u>

Please replace the paragraph on lines 15-16 with the following amended paragraph:

The ~~battery 1 is~~ battery 11 is connected to the power supply circuit 12 which provides regulated power at the various voltages used by the components of the mobile telephone.

Please replace the paragraph beginning on line 26 with the following amended paragraph:

Referring to Figure 2, the speed estimation program of the DSP subsystem 3 receives a stream of in-phase and quadrature baseband signal components and provides ~~samples time-domain~~ time-domain samples of the transfer function (H) of the signal paths having the various delays handled by the RAKE processing. In the present example, these transfer function samples are obtained by demodulating the received signal for reference symbols with values representing the transmitted signal.

On Page 6,

Please replace the paragraph beginning on line 1 with the following amended paragraph:

Signal conditioning is performed on the transfer function samples (step p1a and p1b) using algorithms adapted for low and high speed ranges, respectively. The low and high speed ranges overlap in the present example. However, the upper edge of the lower range may simply meet the lower edge of the upper range. The conditioned signals are then used to produce speed estimates (steps p2a and p2b) and the appropriate speed estimate is selected (step p3).

Please replace the paragraph beginning on line 27 and bridging to page 7, line 3, with the following amended paragraph:

In the case of the current finger being allocated at step s2 and following step s5, it is determined whether a valid reference symbol has been detected (step s6). The reference symbols occur regularly in signals transmitted to the mobile station and have known ~~and~~ values. Therefore, values associated with like signals are used for calculation of the Doppler spread and speed. In the present case, the power at which the reference signals are transmitted is constant. However, if the power at which they are transmitted varies sufficiently quickly to affect the determined derivative value for the envelope, the magnitude of the envelope can be normalised using information about their transmission power. This information may be provided in control channels, for example.

On Page 7,

Please replace the paragraph beginning on line 5 with the following amended paragraph:

If a valid reference symbol has been detected, in-phase (I) and quadrature (Q) component values for the transfer function are obtained (step s7). When the aforementioned I and Q

values have been obtained, they are used to ~~calculated~~ calculate the magnitude of the

transfer function's envelope (r) (step s8).

Please replace the paragraph beginning on line 14 with the following amended paragraph:

When the envelope magnitude value has been obtained, it is determined whether continuous

invocation mode is being used (step s10). Continuous invocation mode is the normal mode

of operation with an envelope value ~~be~~ being obtained for each slot, i.e. regularly and

frequently. However, under some circumstances, the speed estimation program may not be

run in some slots. For instance the program may not be called during the transmission gap in

compressed mode.

On Page 8,

Please replace the paragraph beginning on line 27 with the following amended paragraph:

The results of the low speed and high speed signal conditioning process p1a, p1b are

supplied to the low speed and high speed speed estimating processes p2a, p2b, respectively.

On Page 10,

Please replace the paragraph beginning on line 12 with the following amended paragraph:

The newly calculated Doppler spread estimate is checked to determine whether it falls within

a range of valid values (step s30). If the Doppler spread estimate is outside the valid values

range, the process proceeds to step s28. However, if it is within the valid values range, it is

used to ~~computer~~ compute a speed estimate for the mobile station using:-

$$\hat{v} = \frac{\hat{f}_{d_{spread}} c}{f_c}$$

where c is the velocity of light in free space and f_c is the carrier frequency of the signal being received. It is determined whether the newly estimated speed value is within a valid range, i.e. below 500km/h in the present example. (step s32). If not, the process moves to step s28. If the speed value is valid, the reliability flag is set to true.

Please replace the paragraph beginning on line 27 and bridging to page 11, line 4, with the following amended paragraph:

Referring to Figure 5, when the speed estimation processes p2a, p2b have been completed, the speed selection process p3 determines whether both speed estimate ~~process~~ processes have produced reliable estimates (step s41). If one or both have not produced reliable estimates, as indicated by their respective reliability flags, no speed estimate is selected, a speed estimate reliability flag is set to false (step s42) and the process terminates.